

EXHIBIT A

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Paper No. 10
Filed: August 7, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

T-MOBILE US, INC. and T-MOBILE USA, INC.,
Petitioner,

v.

HUAWEI TECHNOLOGIES CO., LTD.,
Patent Owner.

Case IPR2017-00697
Patent 8,719,617 B2

Before TREVOR M. JEFFERSON, PATRICK M. BOUCHER, and
JOHN F. HORVATH, *Administrative Patent Judges*.

HORVATH, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

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I. INTRODUCTION

A. Background

T-Mobile US, Inc. and T-Mobile USA, Inc. (“Petitioner”) filed a Petition (Paper 4, “Pet.”) to institute *inter partes* review of claims 1, 4, 5, 7, and 10 of U.S. Patent No. 8,719,617 B2 (Ex. 1001, “the ’617 patent”). Huawei Technologies Co. Ltd. (“Patent Owner”) filed a Preliminary Response (Paper 9, “Prelim. Resp.”).

Upon consideration of the Petition and Preliminary Response, we are persuaded, under 35 U.S.C. § 314(a), that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of claims 1, 4, 5, 7, and 10 of the ’617 patent. Accordingly, we institute an *inter partes* review of these claims.

B. Related Matters

Petitioner identifies the following as a matter that could affect, or be affected by, a decision in this proceeding: *Huawei Technologies Co. Ltd. v. T-Mobile US, Inc.*, Case No. 2:16-cv-00052-JRG-RSP (E.D. Tex). Pet. 1. Patent Owner identifies the same matter. Paper 8, 2.

C. Evidence Relied Upon

Reference		Date	Exhibit
Phan-Anh	US 7,769,374 B2	Mar. 12, 2001 (filed)	Ex. 1003
<i>Architecture Principles for Release 2000</i> , 3rd Generation Partnership Project, 3G TR 23.821 V1.0.1 (2000-07) (“TR23.821”)		July 24, 2000	Ex. 1004
<i>Reassignment for S-CSCF during the terminated call procedure</i> , Huawei,		Jan. 10, 2006	Ex. 1005

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Reference	Date	Exhibit
3GPP TSG SA WG2 Architecture — S2#50, (“S2-060216”).		
<i>IP Multimedia Subsystem (IMS); Stage 2 (Release 7), 3rd Generation Partnership Project, 3GPP TS 23.228 V7.2.0 (2005–12) (“TS23.228”).</i>	Dec. 7, 2005	Ex. 1007

Petitioner also relies on the Declaration of Craig Bishop. Ex. 1002.

D. The Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

References	Basis	Claims Challenged
Phan-Anh and S2-060216	§ 103(a)	1, 5, and 7
Phan-Anh, S2-060216, and TS 23.228	§ 103(a)	1, 4, 5, 7, and 10
Phan-Anh, S2-060216, and TS 23.228, and TR 23.821	§ 103(a)	1, 4, 5, 7, and 10

II. ANALYSIS

A. The ’617 Patent

The ’617 patent relates to a method and device for disaster intolerance in an Internet Protocol multimedia system (IMS). Ex. 1001, 1:20–23.

IMS’s provide mobile users with multimedia services built upon Internet applications, services, and protocols. *See* Ex. 1002 ¶ 48. The core of an IMS network contains Session Initiation Protocol (SIP) servers, called “control functions,” and a user database. *Id.* This can be seen in Figure 5 of the ’617 patent, which is reproduced below:

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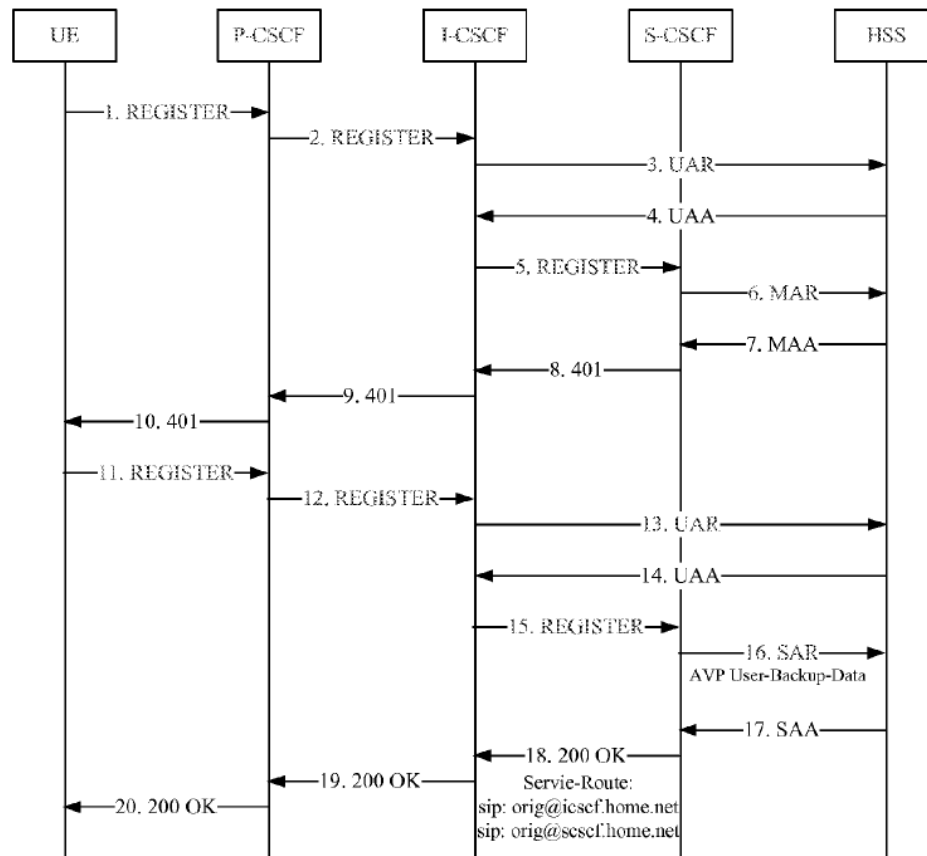


FIG. 5

Figure 5 is a flowchart depicting user registration in an IMS network in an embodiment of the '617 patent. Ex. 1001, 6:4–5. The IMS network consists of a home subscriber server (HSS) having a user database, a proxy call state control function (P-CSCF), an interrogating call state control function (I-CSCF), and a serving call state control function (S-CSCF). *Id.* at 1:27–62.

A user, using user equipment (UE) such as a mobile phone, registers with the IMS network. Ex. 1001 at 1:36–38. The UE connects to and sends a registration request (1. REGISTER) to the P-CSCF, and the P-CSCF forwards the request (2. REGISTER) to the I-CSCF. *Id.* at 1:39–45. The I-CSCF responds to the registration request by sending a user authorization

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request (3. UAR) to the HSS, and receives from the HSS a user authorization answer (4. UAA) containing information describing the capabilities needed by an S-CSCF to provide services to the UE. *Id.* at 1:46–58. The I-CSCF assigns the UE to an S-CSCF having the capacity to provide service to the UE, and forwards the user registration request (5. REGISTER) to the assigned S-CSCF. *Id.* at 1:58–62. The S-CSCF requests user authentication data from the HSS (6. MAR), receives the authentication data in an answer (7. MAA), and uses the data to send—via I-CSCF (8. 401) and P-CSCF (9. 401)—an authentication challenge to the UE (10. 401). *Id.* at 1:63–67.

The UE formulates a response to the authentication challenge, and transmits a new registration request containing the response to the IMS (11. REGISTER–15. REGISTER). *Id.* at 1:67–2:15. During this authentication cycle, the HSS records the address of the S-CSCF to which the UE has been assigned. *Id.* at 2:6–12. The S-CSCF verifies the UE’s authentication response, and upon verification, requests user subscription data from the HSS (16. SAR). *Id.* at 2:16–21. The S-CSCF’s request for user subscription data contains user data to be backed up on the HSS, including at least an SIP universal resource locator (URL) that identifies the P-CSCF through which the UE accesses the IMS, and a contact address of the UE. *Id.* at 7:26–40. The HSS saves this user backup data, and sends the S-CSCF the requested user subscription data (17. SAA). *Id.* at 2:16–21, 7:41–44. The S-CSCF then sends a register success message to the UE via the I-CSCF and P-CSCF (18–20. 200 OK). *Id.* at 2:22–23, 7:45–56. The register success message includes routing addresses for the I-CSCF (orig@iscsf.home.net) and the S-CSCF (orig@sscsf.home.net) to which the UE is assigned. *Id.* at 2:23–30, 7:47–56. This completes user registration with the IMS.

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Once user registration is complete, the following information is stored in the following IMS network elements: (1) the routing addresses for the I-CSCF and the S-CSCF to which the UE is assigned are stored by the P-CSCF; (2) the user subscription data, address of the UE, and address of the P-CSCF through which the UE accesses the IMS are stored in the S-CSCF; and (3) the address of the UE, address of the S-CSCF to which the UE is assigned, and address of the P-CSCF through which the UE accesses the IMS are stored in the HSS. Ex. 1001, 2:33–43, 7:29–44.

IMS networks are designed to be fault tolerant, including with respect to S-CSCF faults. See Ex. 1001, 1:27–35. Conventionally, this is achieved by requiring a registered UE to re-register with the IMS on a periodic basis. *Id.* at 3:4–13. During the re-registration process, if the S-CSCF to which the UE was assigned has failed, the I-CSCF detects the failure because it does not receive a response to the re-registration request it forwards to the failed S-CSCF. *Id.* at 3:13–20, Fig. 3 (steps 1–5). The I-CSCF notifies the UE of the failed re-registration attempt by sending—via the P-CSCF—a timeout message to the UE. *Id.* at 3:20–22, Fig. 3 (steps 6–7). The UE then registers with the IMS as a new or initial registrant, and the I-CSCF assigns the UE to a new, non-failed S-CSCF. *Id.* at 3:22–41, Fig. 3 (steps 8–15).

The '617 patent identifies a number of disadvantages associated with re-assigning an UE from a failed S-CSCF to a non-failed S-CSCF in the conventional manner described above. First, following S-CSCF failure, the UE lacks network service for the remainder of the pending re-registration period. Ex. 1001, 3:42–47. If that period is too long, the UE may have to wait a long time before attempting to re-register to the failed S-CSCF, and ultimately being re-assigned and registered to a non-failed S-CSCF. *Id.* at

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3:49–50. If the re-registration period is too short, frequent UE re-registrations can tie up IMS network resources, and drain the UE’s battery. *Id.* at 3:53–61. Accordingly, the ’617 patent proposes “a method for realizing an IMS disaster tolerance so as to improve the network reliability without increasing the system burden.” *Id.* at 3:65–67.

In one embodiment, when a called party’s UE receives a call while assigned to a failed S-CSCF, the ’617 patent teaches re-assigning the called party’s UE from the failed S-CSCF to a non-failed S-CSCF according to the method shown in Figure 7(a), which is reproduced below.

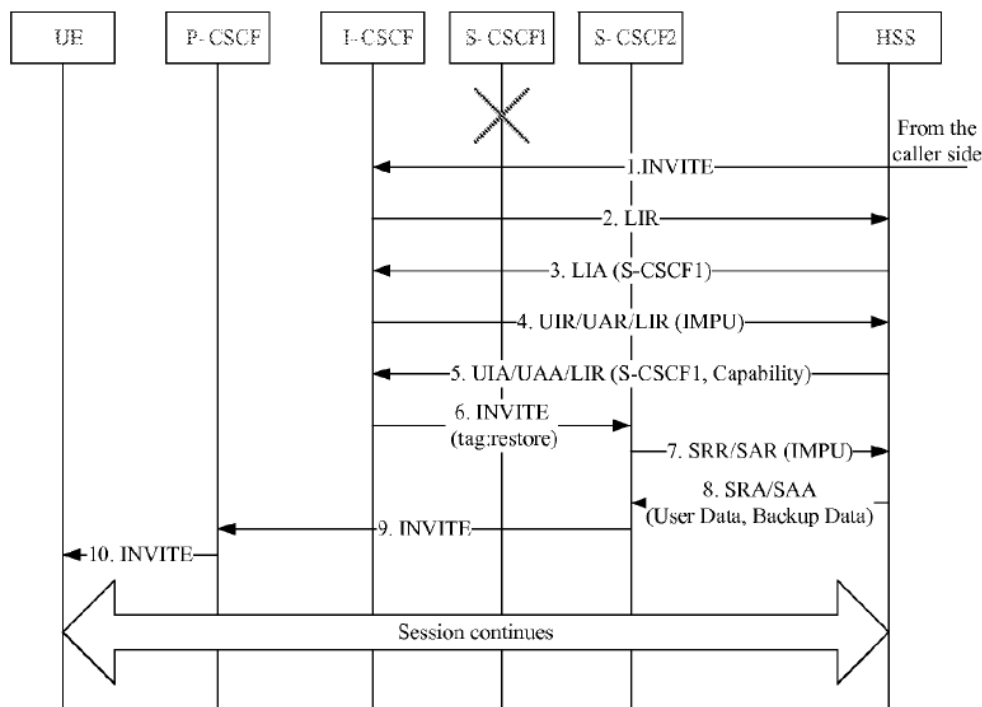


FIG. 7(a)

Figure 7(a) is a flowchart depicting a method of re-assigning a called party’s UE from a failed S-CSCF1 to a non-failed S-CSCF2 when the called party receives an invitation from a calling party. Ex. 1001, 6:10–13.

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An S-CSCF in the network of the calling party sends a session setup request (1. INVITE) to an I-CSCF in the called party's network. Ex. 1001, 13:22–25. The I-CSCF queries the HSS in the called party's network for the address of the S-CSCF (S-CSCF1) to which the called party is registered (2. LIR), and the HSS returns the address (3. LIA). *Id.* at 13:25–27. The I-CSCF attempts to forward the session setup request to S-CSCF1, and determines S-CSCF1 has failed. *Id.* at 13:27–28. The I-CSCF interrogates the HSS to determine the capabilities of S-CSCF1 (4. UIR/UAR/LIR), and receives a response indicating those capabilities (5. UIA/ UAA/LIA). *Id.* at 13:31–33. The I-CSCF then assigns, based on the determined capabilities, a new S-CSCF (S-CSCF2) to handle calls for the called party, and forwards the session setup request with an added session “restore” tag to newly assigned S-CSCF2 (6. INVITE (tag:restore)). *Id.* at 13:47–50. Newly assigned S-CSCF2 queries the HSS for the called party's subscription and backup data (7. SRR/SAR), and receives the data from HSS (8. SRA/SAA). *Id.* at 13:50–59. The called party's backup data contains information stored by failed S-CSCF1 when the called party's UE initially registered with S-CSCF1. *Id.* at 11:34–42. Newly assigned S-CSCF2 uses the called party's subscription and backup data to restore service to the called party by forwarding—via the P-CSCF by which the called party accesses the IMS network (9. INVITE)—the session setup request to the called party's UE (10. INVITE). *Id.* at 13:59–65.

Petitioner challenges the patentability of claims 1, 4, 5, 7, and 10 of the '617 patent. Claims 1, 5, and 7 are independent, claim 4 depends from claim 1, and claim 10 depends from claim 7. Claim 1, reproduced below, is illustrative.

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1. In a serving call session control function (S-CSCF), a method for realizing an Internet Protocol multimedia subsystem (IMS) disaster tolerance, the method comprising:

receiving a service request of a user forwarded by an interrogating CSCF (I-CSCF) when it is determined that a previous S-CSCF failed in providing a service to the user;

sending a request for subscription data of the user and restoration data stored in a data storage entity and used for restoring the service that failed to the user, wherein the restoration data is stored by a previous S-CSCF;

receiving the stored data that includes the subscription data of the user and the restoration data; and

based on the received data, restoring the service to the user.

Ex. 1001, 20:25–38. Independent claim 5 recites an S-CSCF having a receiver, transmitter, and processor configured to respectively perform the receiving, sending, and restoring functions recited in claim 1. *Compare id.* at 20:25–38 *with id.* at 20:56–21:3. Independent claim 7 recites a computer program product stored on a computer readable medium in an S-CSCF, and comprising instructions that when executed cause the S-CSCF to perform the receiving, sending, and restoring functions recited in claim 1. *Compare id.* at 20:25–38 *with id.* at 21:9–22:3.

B. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent in which

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they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142–46 (2016). Consistent with the rule of broadest reasonable interpretation, claim terms are generally given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

We depart from the plain and ordinary meaning of a claim term in only two instances, when the patentee acts as his own lexicographer, or when the patentee disavows the full scope of the term in the specification or during prosecution. *See Hill–Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). “The standard for disavowal is exacting, requiring clear and unequivocal evidence that the claimed invention includes or does not include a particular feature.” *Poly–America, L.P. v. API Industries, Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016). Disavowal of claim scope can be implicit or explicit. For example, “an inventor may disavow claims lacking a particular feature when the specification describes ‘the present invention’ as having that feature.” *Id.*

Patent Owner proposes construction of the term “restoration data”, which is recited in all of the challenged claims. Prelim. Resp. 18–22. Neither party proposes the construction of any other claim term. *See* Pet. 19–21; Prelim. Resp. 18–22. We explicitly construe the term “restoration data” below. No other terms of the ’671 patent require explicit construction, and all are deemed to have their plain and ordinary meaning.

1. restoration data

Patent Owner proposes the term “restoration data” be construed to mean “data necessary for a newly assigned S-CSCF to restore service to the

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user on the IMS.” Prelim. Resp. 18. Patent Owner argues this construction is the broadest reasonable interpretation that is consistent with the manner in which the term is used in the claims, and with the manner in which the specification describes the data that is used to restore service to a user. *Id.* at 18–20. Patent Owner argues Petitioner’s proposal that “restoration data” be construed to have its “ordinary and customary” meaning would result in an overly broad construction in which the term meant “any data loaded onto an S-CSCF to provide service to a user.” *Id.* at 20–21.

As noted above, Petitioner argues “restoration data” should be construed to have its ordinary and customary meaning. Pet. 19. Petitioner argues Patent Owner’s proposed construction of “restoration data” improperly attempts to import limitations from the specification into the claims, and that there is no “lexicography through which the inventors sought to define the term[.]” *Id.* at 20–21. Petitioner further argues the term “restoration data” should not be construed to require the SIP URL of a P-CSCF through which the user connects to the IMS network because dependent claims 4 and 10 explicitly narrow the meaning of “restoration data” recited by independent claims 1 and 7, respectively, to include the P-CSCF’s SIP URL. *Id.* at 20–21; *see also, e.g.*, Ex. 1001, 20:25–38, 20:52–55.

The term “restoration data” does not appear in the Specification of the ’617 patent. The only prescription for “restoration data” that appears in the ’617 patent appears in the claims. In particular, as Petitioner contends, dependent claims 4 and 10 explicitly require the “restoration data” recited in independent claims 1 and 7 to include, respectively, the SIP URL of the P-CSCF and the contact address of the user terminal. Thus, the broadest

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reasonable interpretation of the term “restoration data” does not require the SIP URL of the P-CSCF and the contact address of the user terminal to be included in “restoration data.”

Accordingly, for the reasons discussed above, we construe the term “restoration data” to mean “data that is used by the S-CSCF to restore service to the user.”

C. Level of Ordinary Skill in the Art

Petitioner, relying on the testimony of Mr. Bishop, argues a person of ordinary skill in the art at the time of the invention would have had at least a bachelor’s degree in computer science or electrical engineering and 3–4 years of professional experience or equivalent academic experience in communications technology, and a familiarity with the 3GPP standards, including those related to IMS’s. Pet. 3 (citing Ex. 1002 ¶ 21). Patent Owner does not dispute Petitioner’s proposed definition, and does not proffer its own definition for a person of ordinary skill in the art. *See* Prelim. Resp. 1–53. Accordingly, for purposes of this Decision, we adopt Petitioner’s proposed definition.

D. Whether S2-060216, TS23.228, and TR23.821 are printed publications under 35 U.S.C. § 102

Petitioner relies on various 3GPP documents, including TR23.821, TS23.228, and S2-060216, to disclose what was known to persons of ordinary skill in the art at the time of the invention described in the ’617 patent. Petitioner argues these documents are prior art because they were “available to the interested public well before October 23, 2006,” the earliest priority date to which the ’617 patent is entitled to claim priority. Pet. 36. Relying on the testimony of Mr. Bishop, Petitioner argues the relied upon

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documents were publically available because it was 3GPP practice:

to make standards proposals and draft standard specifications publically available on its FTP [file transfer protocol] website, without password restriction, before during, or shortly after a working group meeting for which the documents were intended, and to store them there for an indefinite period thereafter.

Id. at 37 (citing Ex. 1002 ¶¶ 38–43). Further relying on the testimony of Mr. Bishop, Petitioner argues the date each of the 3GPP documents became publically available can be determined by viewing the date and time each document was uploaded to the 3GPP FTP website. *Id.* at 37–38 (citing Ex. 1002 ¶ 43). Accordingly, Petitioner argues TR23.821 was publically available no later than July 24, 2000, TS23.228 was publically available no later than December 7, 2005, and S2-060216 was publically available no later than January 10, 2006. *Id.* at 38–39 (citing Ex. 1002 ¶¶ 24–25, 32–35; Exs. 1021–1023).

Patent Owner argues Petitioner has failed to show the 3GPP documents are prior art to the '617 patent. Prelim. Resp. 22–33. Patent Owner argues Petitioner's evidence of public accessibility is insufficient because Petitioner has relied upon "time stamps indicating a ZIP file was uploaded to an FTP server—with no evidence that the particular ZIP file was actually disseminated to members of the public or indexed in a manner to provide sufficient public accessibility," and because Petitioner has failed to show "the *specific S2-060216, TS23.228, and TR23.821 submissions* were publicly accessible" prior to the filing date of the '617 patent. *Id.* at 22–23. Patent Owner further argues Petitioner's evidence of the public availability of the 3GPP documents is insufficient because Petitioner has failed to

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provide (a) any evidence that the *specific* documents relied upon were uploaded to the 3GPP FTP server, (b) a printout of the contents of the *specific* files stored in the compressed ZIP files uploaded to the 3GPP FTP server, and (c) any evidence that the *specific* files relied upon were ever downloaded from the 3GPP FTP server. *Id.* at 24–27. Patent Owner further argues that Mr. Bishop’s statement that he “would have” downloaded documents such as S2-060216 in preparation for 3GPP working group meetings, rather than that he “did” download the documents, is pure conjecture and fails to show the documents were ever downloaded. *Id.* at 26. Patent Owner further argues that Petitioner has failed to show “that multiple members of the public *actually* accessed [the relied upon documents] prior to the priority date of the ’617 Patent,” and has failed to show indexing so that “the public could exercise reasonable diligence to search/locate” the documents relied upon. *Id.* at 28, 32. Patent Owner further argues that “[d]ocuments that are not cataloged or indexed in a meaningful way are not accessible to the public.” *Id.* at 29.

Upon consideration of Petitioner’s evidence and Patent Owner’s arguments regarding the insufficiency of Petitioner’s evidence, we are persuaded at this stage of the proceeding that Petitioner has demonstrated a reasonable likelihood of showing the 3GPP documents Petitioner relies upon, including the TR23.821, S2-060216, and TS23.228 documents, were publicly available before the earliest effective priority date of the ’617 patent, and are therefore prior art under 35 U.S.C. § 102.

“Whether an asserted . . . document qualifies as a ‘printed publication’ under § 102 is a legal conclusion based on underlying factual determinations.” *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d

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1340, 1350 (Fed. Cir. 2008). Public accessibility is “the touchstone in determining whether a reference constitutes a ‘printed publication.’” *In re Hall*, 781 F.2d 897, 898–99 (Fed. Cir. 1986). A reference is publicly accessible if it “has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.” *In re Wyer*, 655 F.2d 221, 226 (CCPA 1981) (citations omitted). Public accessibility “is determined on a case-by-case basis, and based on the ‘facts and circumstances surrounding the reference’s disclosure to members of the public.’” *In re Lister*, 583 F.3d 1307, 1311 (Fed. Cir. 2009) (quoting *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004)). If public accessibility is proved, “there is no requirement to show that particular members of the public *actually received* the information” disclosed in the reference. *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1568–69 (Fed. Cir. 1988) (emphasis added).

“[A] variety of factors may be useful in determining whether a reference was publicly accessible.” *In re Lister*, 583 F.3d 1307, 1312 (Fed. Cir. 2009). One such factor is whether a party intended to make the reference public. *See In re Wyer*, 655 F.2d 221, 227 (CCPA 1981). Other factors include the length of time the reference was displayed, the expertise of the intended audience to which it was displayed, whether the displaying party had a reasonable expectation that the information disclosed in the reference would not be copied, efforts made to prevent copying, and the ease or simplicity with which the reference could have been copied. *See In re Klopfenstein*, 380 F.3d 1345, 1350–51 (Fed. Cir. 2004). Professional and behavioral norms can inform whether a displaying party had a reasonable expectation that information disclosed in a reference would not have been

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copied. *Id.* Thus, “[e]vidence of routine business practice can be sufficient to prove that a reference was made [publically] accessible.” *Constant*, 848 F.2d at 1568–69. Cataloging and indexing are additional factors that can be useful in determining public accessibility. *In re Lister*, 583 F.3d at 1312. Neither factor, however, “is a necessary condition for [a] reference to be publicly accessible.” *Id.*

To determine whether the 3GPP documents Petitioner relies upon were publicly accessible, “we must consider all of the facts and circumstances surrounding [their] disclosure and determine whether an interested researcher would have been sufficiently capable of finding the reference[s] and examining [their] contents.” *Id.* We find, based on the *Klopfenstein* factors discussed above, Petitioner has demonstrated a reasonable likelihood of showing the 3GPP documents it relies upon were publically available prior to the priority date of the ’617 patent. The documents were posted on the 3GPP FTP website for an extended period of time (indefinitely), without encryption or password protection, and—based on 3GPP policies and practices regarding posted documents—with the expectation that those interested in the information disclosed in the documents would freely download and copy them. *See* Pet. 37; Ex. 1002 ¶¶ 2–11, 38–43. By their very nature, the 3GPP documents Petitioner relies upon are directed to a sophisticated audience—IT professionals in the telecommunications industry—who would have had the requisite computer skills needed to navigate the 3GPP FTP site to find and download documents of interest to them.

The only *Klopfenstein* factors that detract from Petitioner’s reasonable likelihood of showing the public availability of the 3GPP documents relied

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upon are the lack of any evidence that the relied upon documents were ever catalogued and indexed. However, contrary to Patent Owner's contention, neither cataloging nor indexing "is a necessary condition for [the] reference[s] to be publicly accessible." *In re Lister*, 583 F.3d at 1312. Nor does Petitioner need to show the documents relied upon were *actually* disseminated to members of the public as Patent Owner contends. *See Advanced Micro-Devices* 848 F.2d at 1568–69. Moreover, Petitioner is reasonably likely to show the documents relied upon were uploaded to the 3GPP FTP server at the dates and times Petitioner contends. In particular, relying on Mr. Bishop's testimony, Petitioner contends: (1) the S2-060216 proposal (Ex. 1005) is contained in the S2-060216.zip file (Ex. 1022), and was uploaded to the 3GPP FTP website on January 10, 2006; (2) the TR23.821 specification (Ex. 1004) is contained in the 23.821-101.zip file (Ex. 1021), and was uploaded to the 3GPP FTP website on July 24, 2000; and (3) the TS23.228 specification (Ex. 1007) is contained in the 23.228-720.zip file (Ex. 1023), and was uploaded to the 3GPP FTP website on December 7, 2005. *See* Pet. 38–39; Ex. 1002 ¶¶ 25, 33, and 35.

E. Alleged Obviousness of Claims 1, 5, and 7 over Phan-Anh and S2-060216

Petitioner argues claims 1, 5, and 7 of the '617 patent would have been obvious over Phan-Anh and S2-060216. Pet. 27–60. Upon review of Petitioner's evidence and Patent Owner's arguments regarding the insufficiency of that evidence, and for the reasons discussed below, we are persuaded that Petitioner has demonstrated a reasonable likelihood of showing claims 1, 5, and 7 would have been obvious over Phan-Anh and S2-060216.

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1. Overview of Phan-Anh (Ex. 1003)

Phan-Anh discloses a method of “protecting the Transport Address (TA) . . . of a mobile subscriber . . . from loss and after Call State Control Function (CSCF) crashes and after reset situations of a network element realizing CSCF functionality.” Ex. 1003, 1:7–13. Phan-Anh incorporates by reference, in its entirety, 3GPP technical report TR23.821 V.1.0.1, and provides a URL pointing to the location of the report on the 3GPP website. *Id.* at 1:15–19. Phan-Anh criticizes the network disclosed in TR23.821 for “fail[ing] to protect the IP address of a subscriber in the case of a reset situation of a network element realizing CSCF functionality . . . thereby preventing recovery after a reset of the network element.” *Id.* at 1:25–31. Accordingly, Phan-Anh proposes:

[A] technique for recovering location information of a subscriber in a mobile network including forwarding a registration request from the subscriber to an S-CSCF including the subscriber’s TA and then forwarding an AL (Application Level) location update from the S-CSCF to a Home Subscriber Server (HSS) including the subscriber’s TA and the (S-CSCF) address and storing data including the subscriber’s TA and the S-CSCF address in the HSS so as to be protected against loss. *Id.* at 1:38–46.

Phan-Anh discloses its method for storing and recovering a subscriber’s TA in Figures 4A and 4B. Ex. 1003, 2:22–26. Figure 4B of Phan-Anh is reproduced below.

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FIG. 4B

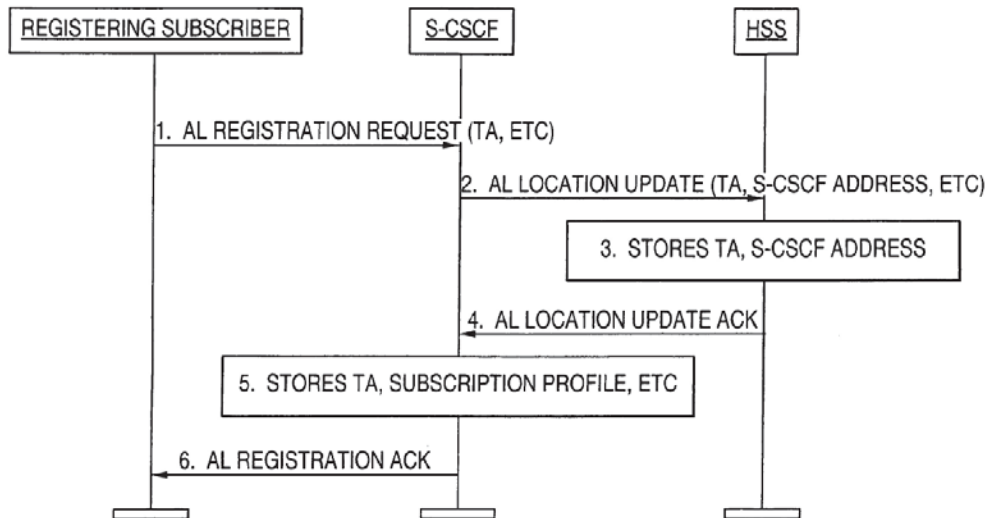


Figure 4B of Phan-Anh discloses a process for storing a subscriber's TA and S-CSCF address on an HSS when the subscriber initially registers with the S-CSCF. As shown in Figure 4B, a subscriber sends a registration request (step 1) that includes the subscriber's TA or transport address to the S-CSCF to which the subscriber has been assigned. *Id.* at 4:35–37. The S-CSCF sends a location update (step 2) to the HSS, which includes the subscriber's TA and the S-CSCF's address, and the HSS stores (step 3) that information on a hard disk or other non-volatile memory. *Id.* at 4:37–40. The HSS returns an acknowledgement message (step 4) to the S-CSCF, which contains the subscriber's profile, and the S-CSCF stores the subscriber's profile and TA (step 5). *Id.* at 4:40–43. Finally, the S-CSCF returns an acknowledge message (step 6) to the registering subscriber. *Id.* at 4:43–45.

Phan-Anh's method of an S-CSCF recovering a subscriber's TA that has been lost due to the S-CSCF's failure is illustrated in Figure 4A, which is reproduced below.

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FIG. 4A

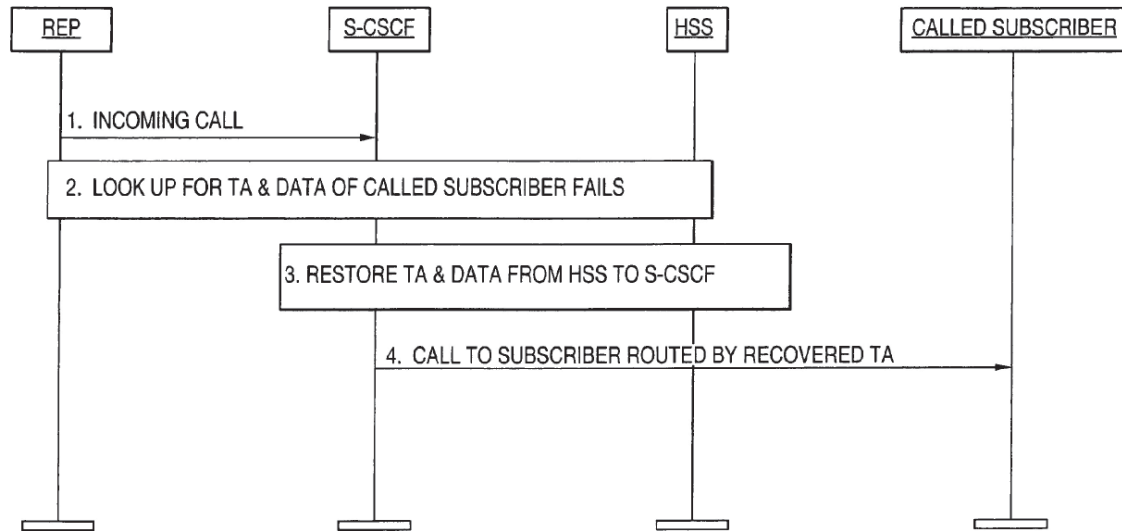


Figure 4A of Phan-Anh discloses a method that allows a failed and restarted S-CSCF to recover, from the HSS where it is stored, the TA and other data of a subscriber that had previously registered with the S-CSCF. Ex. 1004, 4:20–25. The restarted S-CSCF receives a session setup request for an incoming call (step 1) from a remote end-point (REP). *Id.* at 4:26–28. The S-CSCF looks for, but fails to find, the subscriber’s TA and other data (step 2) because that data was lost when the S-CSCF failed. *Id.* at 4:28–29, 4:51–54. The restarted S-CSCF retrieves the subscriber’s TA and other data (step 3) from the HSS where it was previously stored, and restores the service to the subscriber by using the retrieved data to route the session setup request to the subscriber (step 4). *Id.* at 4:29–34.

2. Overview of TR23.821 (Ex. 1004)

As noted above, Phan-Anh incorporates TR23.821 by reference in its entirety. *See* Ex. 1003, 1:15–19. TR23.821 is a 3GPP technical report that discloses the “architectural requirements, features, functions, and solutions of [a] UMTS,” or Universal Mobile Telecommunications System. Ex. 1004,

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7. The mechanism by which a user registers with the UMTS is disclosed in Figures B.1 and B.2 of TR23.821, and involves the user sending, via UE and P-CSCF, a registration request to an I-CSCF, having the I-CSCF query an HSS to determine the capabilities needed by an S-CSCF to service the UE, and assigning the UE to an S-CSCF having those capabilities. *Id.* at 48–52.

Information that is exchanged between the various network elements of the UMTS (e.g., the P-CSCF, I-CSCF, S-CSCF, and HSS) during the registration process is exchanged using SIP call control protocol. *See* Ex. 1004, 29 (“The single call control protocol applied . . . between CSCFs within one operator’s network . . . will be based on SIP.”); *see also id.* at 52 (indicating information flow H5 between I-CSCF and P-CSCF during UE registration is performed using “normal SIP response processing rules.”). The information that is exchanged among network elements during the registration process includes the subscriber’s profile. *Id.* at 51. The S-CSCF to which the subscriber’s UE is assigned pulls the subscriber’s profile (information flow H2) from the HSS using the Cx-Pull command. *Id.*

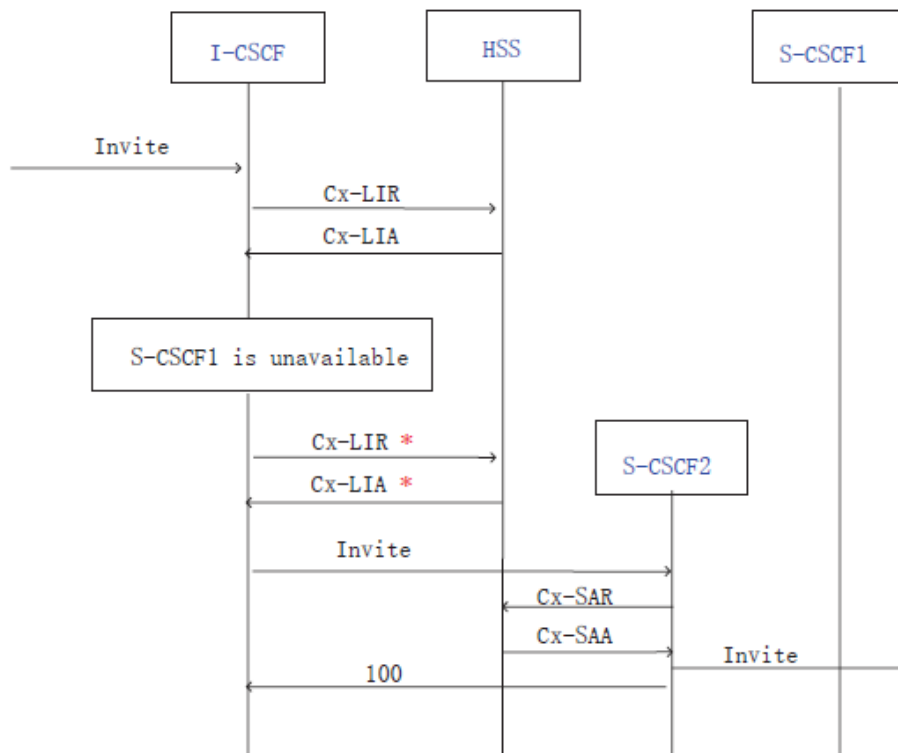
Once the subscriber’s registration is complete, the following information is stored in the following network elements of the UTMS: (1) the UE stores the P-CSCF address; (2) the P-CSCF stores the UE address; (3) the I-CSCF stores no information; (4) the S-CSCF stores the HSS address, the P-CSCF address, and the subscriber’s profile; and (5) the HSS stores the S-CSCF address. Ex. 1004, 56–57 (Table B.4). TR23.821 further indicates 3GPP considered storing the P-CSCF address in the HSS after registration. *Id.*

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3. Overview of S2-060216 (Ex. 1005)

S2-060216 is a 3GPP architecture proposal submitted by Huawei for consideration during the January 16–20, 2006 meeting of the 3GPP SA2 Working Group. Ex. 1005, 1. The document pertains to re-assignment of an S-CSCF during a terminated call procedure. *Id.* S2-060216 describes its S-CSCF re-assignment method in its only Figure, which is reproduced below.



As shown in the Figure reproduced above, when an I-CSCF in a called party's network receives an INVITE message from a calling party, it queries the called party's HSS (Cx-LIR) to retrieve the address of the S-CSCF1 to which the called party's UE was assigned at registration (Cx-LIA). *Id.* at 2. When the I-CSCF determines the assigned S-CSCF1 has failed (e.g., because it cannot reach S-CSCF1), it queries the called party's HSS (Cx-LIR*) to retrieve the capabilities of the failed S-CSCF1 (Cx-LIA*). *Id.* The

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called party's I-CSCF uses the retrieved capabilities to select a new S-CSCF2, and forwards the INVITE message to the newly assigned S-CSCF2. *Id.* The newly assigned S-CSCF2 registers with the called party's HSS (Cx-SAR/Cx-SAA), and the HSS records the assignment of the called party's UE to new S-CSCF2. S-CSCF2 then forwards the INVITE message to the UE of the called party, thereby restoring service to the called party. *Id.* The I-CSCF in the called party's network subsequently routes all calls to the called party via newly assigned S-CSCF2. *Id.*

4. Comparison of Claims 1, 5, and 7 to the Combined Teachings of Phan-Anh and S2-060216

Petitioner demonstrates a reasonable likelihood of showing how the combined teachings of Phan-Anh and S2-060216 account for each of the limitations required by claims 1, 5, and 7. *See* Pet. 27–60.

For example, claim 1 recites a method for realizing IMS disaster tolerance, and requires an S-CSCF to receive a user service request from a forwarding I-CSCF that has determined a previous S-CSCF failed to provide service to the user. Ex. 1001, 20:25–31. Petitioner demonstrates a reasonable likelihood of showing S2-060216 teaches a method for realizing disaster intolerance whereby an S-CSCF (S-CSCF2) receives a user service request from a forwarding I-CSCF that has determined a previous S-CSCF (S-CSCF1) is unavailable and therefore has failed to provide service to the user. *See* Pet. 41–42; *see also* Ex. 1005, 2.

Claim 1 further requires the S-CSCF to send a request to a data storage entity for user subscription data and restoration data that was stored by the previous S-CSCF. Ex. 1001, 20:32–35. Petitioner argues the combination of S2-060216 and Phan-Anh teaches this limitation. *See* Pet.

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45–50. In particular, Petitioner argues Phan-Anh teaches an S-CSCF stores a user’s TA or transport address on the HSS during registration, and requests a download of the user’s TA and subscription data from the HSS during recovery. *Id.* at 45–47; Ex. 1003 4:10–12, 4:28–31, 4:38–43, 5:28–31, Figs. 4A, 4B.¹ Petitioner, relying on the testimony of Mr. Bishop, further argues that should the term “restoration data” be construed to include the SIP-based URL address of the P-CSCF through which the user accesses the IMS network, a person of ordinary skill in the art would have found it obvious to modify Phan-Anh to also store the SIP-based URL address of the P-CSCF on the HSS. *Id.* at 49–50 (citing Ex. 1002 ¶¶ 116–117). In particular, Petitioner argues Phan-Anh incorporates TR23.821 by reference, and TR23.821 teaches the S-CSCF must also know the P-CSCF’s address, which is an SIP-based URL address, to provide service to the user. *Id.* (citing Ex. 1002 ¶ 116; Ex. 1004, 27–29, 56–57). Therefore, Petitioner argues a person of ordinary skill in the art would have known the S-CSCF needs to retrieve both the user’s TA and the P-CSCF’s address to restore service to the user, and would have found it obvious to store both pieces of information on the HSS. *Id.* at 44 (citing Ex. 1002 ¶ 117).

Relying on the testimony of Mr. Bishop, Petitioner further argues that a person of ordinary skill in the art would have known that Phan-Anh’s data restoration procedure could have been performed “even if a different S-CSCF performed it,” and therefore could have been performed “to retrieve

¹ Petitioner mistakenly cites to step 5 of Figure 5B of Phan-Anh for disclosing storing the user’s TA and subscription profile on the HSS. Phan-Anh does not have a Figure 5B. However, Phan-Anh’s Figure 4B includes a step 5 in which a user’s TA and subscription data is stored on the HSS.

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the restoration data stored in the HSS after failure of the original S-CSCF and assignment of a new S-CSCF.” Pet. 48 (citing Ex. 1002 ¶ 114). Petitioner argues S2-060216 teaches assigning a user to a new S-CSCF (S-CSCF2) after failure of an originally assigned S-CSCF (S-CSCF1), and having the newly assigned S-CSCF2 retrieve data from the HSS to restore service to the user. *Id.* at 48–49; Ex. 1005, 2. Therefore, relying on the testimony of Mr. Bishop, Petitioner argues a person of ordinary skill in the art would have found it obvious to combine the teachings of Phan-Anh and S2-060216 to have a newly assigned S-CSCF2 recover data stored by a previously assigned S-CSCF1 because Phan-Anh teaches restoring a user’s service when an S-CSCF fails and restarts, S2-060216 teaches restoring a user’s service when an S-CSCF fails and is replaced, and combining the two would have “achieve[d] a solution that covered both S-CSCF failure/restart and S-CSCF failure/re-assignment.” *Id.* at 58–59 (citing Ex. 1002 ¶ 142).

Patent Owner argues Petitioner has failed to identify “which, if any, of the asserted references . . . disclose or suggest ‘the restoration data is stored by the previous S-CSCF,’ as recited in the independent claims.” Prelim. Resp. 33. Patent Owner first argues “the Petition does not even recognize that this element is part of independent claim 1, let alone identify and explain which of the asserted references are relevant to this element.” *Id.* (citing Pet. 40–51). Patent Owner next argues Phan-Anh doesn’t teach this limitation because “Phan-Anh only describes loading data back onto the originally assigned S-CSCF,” *id.* at 43–44, and S2-060216 doesn’t teach this limitation because it “does not describe or depict the original S-CSCF1 storing any backup data with the HSS, and it does not describe the newly assigned S-CSCF2 obtaining any backup data from the HSS,” *id.* at 45.

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Patent Owner further argues Petitioner has failed to articulate reasoning with rational underpinning to combine the teachings of Phan-Anh and S2-060216. *Id.* at 45–51. In particular, Patent Owner argues Petitioner’s reasoning for modifying Phan-Anh is insufficient because Petitioner’s explanations for how Phan-Anh would have been modified by S2-060216 are inconsistent. *Id.* at 47–48. Patent Owner further argues Petitioner’s reasoning for modifying Phan-Anh is insufficient because Petitioner has failed to consider that Phan-Anh already teaches a solution for handling calls when the S-CSCF fails to restart. *Id.* at 49–51. In particular, Patent Owner argues that because Phan-Anh teaches having the I-CSCF handle calls when the S-CSCF fails and does not restart, and re-assigns a user to a new S-CSCF only after the call has terminated, Phan-Anh teaches away from re-assigning the user to a new S-CSCF while the call is being setup as taught by S2-060216. *Id.*

Upon consideration of Petitioner’s evidence, and Patent Owner’s arguments regarding the insufficiency of that evidence, we are persuaded that Petitioner has demonstrated a reasonable likelihood of showing the combination of Phan-Anh and S2-060216 teaches a newly assigned S-CSCF requesting the HSS to send the user’s restoration data and subscription data that was stored on the HSS by a previous S-CSCF.

We are not persuaded, on this record, by Patent Owner’s argument that Petitioner has ignored the requirement that the user’s subscription and restoration data are stored on the HSS by a previous S-CSCF. As explained above, Petitioner argues a person of ordinary skill in the art would have understood from the combined teachings of Phan-Anh and S2-020216 that a newly assigned S-CSCF2 could have requested restoration and subscription

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data that had been stored on the HSS by a previously assigned and failed S-CSCF1. *See* Pet. 46–49 (Phan-Anh’s data restoration process could be performed by a different S-CSCF, such as a newly assigned S-CSCF after failure of the originally assigned S-CSCF).

We are similarly not persuaded, on this record, by Patent Owner’s argument that Petitioner has failed to show the prior art discloses this limitation because neither Phan-Anh nor S2-060216 individually show an S-CSCF requesting data stored by a previous S-CSCF. As discussed above, Petitioner argues it is the *combination* of Phan-Anh and S2-060216 that teaches a newly assigned S-CSCF2 requesting restoration and subscription data stored by a previously assigned S-CSCF1. *See* Pet. 46–49, 58–59.

“Non-obviousness cannot be established by attacking references individually where the [challenge] is based upon the teachings of a combination of references.” *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). “Rather, the test [for obviousness] is what the *combined teachings* of the references *would have suggested* to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (emphases added).

We are equally unpersuaded, on this record, by Patent Owner’s argument that Petitioner has provided inconsistent explanations for modifying Phan-Anh in view of S2-060216. Petitioner argues a person of ordinary skill in the art would have combined the teachings of Phan-Anh (restoring service on a restarted S-CSCF) with the teachings of S2-060216 (restoring service on a re-assigned S-CSCF) in order to “achieve a solution that covered both S-CSCF failure/restart and S-CSCF failure/re-assignment.” Pet. 59 (citing Ex. 1002 ¶ 142). Petitioner’s reasoning is both rational, and consistent with Petitioner’s argument that—in the event Phan-

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Anh's failed S-CSCF does not restart—a person of ordinary skill in the art would have known that Phan-Anh's data-restoration process could have been performed by a different S-CSCF, such as “after failure of the original S-CSCF and assignment of a new S-CSCF.” *Id.* at 47 (citing Ex. 1002 ¶ 114).

Nor are we persuaded, on this record, by Patent Owner's argument that Petitioner has failed to articulate a rational reason to modify Phan-Anh because Phan-Anh already teaches a solution for handling calls when the S-CSCF fails to restart, and that solution teaches away from a newly assigned S-CSCF handling the call. First, it is not clear whether Phan-Anh actually teaches a solution for handling calls when the S-CSCF fails to restart. Patent Owner argues it does because it discloses a procedure to follow when the store S-CSCF “information in the UMS is not valid,” which Patent Owner contends occurs when the S-CSCF has failed and not restarted. Prelim. Resp. 50 (quoting Ex. 1003, 5:48–61). However, Phan-Anh does not explain why the S-CSCF information stored in the UMS is no longer valid. It could be invalid, as Patent Owner contends, because it points to an S-CSCF that has failed and not restarted, and is therefore no longer reachable. However, it could also be invalid because it has simply been corrupted due to a failure at the UMS itself.

Regardless, even if Patent Owner is correct that Phan-Anh teaches an alternative procedure for restoring user service when an S-CSCF has failed and not restarted, at this stage of the proceeding we determine that Phan-Anh does not teach away from replacing the failed S-CSCF with a newly assigned S-CSCF in the manner Petitioner argues is taught by the combination of Phan-Anh and S2-060216. In particular, Phan-Anh does not

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criticize, discredit, or discourage restoring user service by replacing the S-CSCF during call setup. *In re Fulton*, 391 F.3d at 1201.

Lastly, claim 1 requires the S-CSCF to receive the stored user subscription and restoration data, and to restore service to the user based on the received data. Ex. 1001, 20:36–38. Petitioner demonstrates a reasonable likelihood of showing the combination of Phan-Anh and S2-060216 teaches this limitation. *See* Pet. 45–51 (citing Ex. 1003, 4:10–12, 4:28–34, 5:28–31, Fig. 4A; Ex. 1005, 2). As discussed above, Petitioner argues Phan-Anh teaches an S-CSCF receiving subscription and restoration data stored on the HSS, and using the data to restore user service. Ex. 1003, 4:10–12, 4:28–34, 5:28–31, Fig. 4A. Petitioner further argues S2-060216 teaches a newly assigned S-CSCF2 requesting data from the HSS to restore user service. Ex. 1005, 2. Finally, relying on the testimony of Mr. Bishop, Petitioner argues a person of ordinary skill in the art would have found it obvious to combine the teachings of Phan-Anh and S2-060216 so that S-CSCF2 would use Phan-Anh’s data restoration process to request and receive user restoration and subscription data from the HSS that had previously been stored by a previously assigned and failed S-CSCF1. *See* Pet. 48–49.

Upon consideration of the evidence both for and against, and for the reasons discussed above, we are persuaded that Petitioner has demonstrated a reasonable likelihood of showing it would have been obvious to a person of ordinary skill in the art to combine the teachings of Phan-Anh and S2-060216, and that the combined teachings adequately account for each of the limitations required by claim 1.

Petitioner has similarly demonstrated a reasonable likelihood of showing the combined teachings of Phan-Anh and S2-060216 adequately

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account for each of the limitations required by claims 5 and 7. *See* Pet. 51–58. For example, as discussed in § II.A, *supra*, claim 5 requires an S-CSCF having a receiver, transmitter, and processor configured to respectively perform the receiving, sending, and restoring functions recited in claim 1. *Compare* Ex. 1001, 20:25–38 *with id.* at 20:56–21:3. Petitioner argues the combination of Phan-Anh and S2-060216 perform the functional limitations required by claim 5 for the same reasons discussed above with respect to claim 1, and, relying on the testimony of Mr. Bishop, further argues that a person of ordinary skill in the art would have known that S-CSCFs would have “contained receivers and transmitters for sending and receiving messages (including the recited messages) and a processor for handling those requests.” *See* Pet. 51–54 (citing Ex. 1002 ¶¶ 124–133).

Similarly, claim 7 requires a computer program product, stored on a computer readable medium in an S-CSCF, comprising instructions that when executed cause the S-CSCF to perform the receiving, sending, and restoring functions recited in claim 1. *Compare* Ex. 1001, 20:25–38 *with id.* at 21:9–22:3. Petitioner argues the combination of Phan-Anh and S2-060216 perform the functional limitations required by claim 7 for the same reasons discussed above with respect to claim 1. *See* Pet. 57–58 (citing Ex. 1002 ¶¶ 136–141). Petitioner further argues Phan-Anh discloses the functionality of an S-CSCF can be implemented as a program of instructions stored on a non-transitory storage device that is readable by a machine. *Id.* at 56 (citing Ex. 1003, 6:42–7:6). Finally, relying on the testimony of Mr. Bishop, Petitioner argues that a person of ordinary skill in the art would have known that an S-CSCF “was a SIP server that would include a processor and memory and as such was a ‘machine’ (i.e., a computer) that would have a

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‘processor’ for executing the instructions, and that those instructions would be stored on a non-transitory medium (the server’s memory system).” *Id.* at 56–57 (citing Ex. 1002 ¶ 135).

Patent Owner argues Petitioner has failed to show the unpatentability of claims 5 and 7 for the same reasons Petitioner failed to show the unpatentability of claim 1. *See* Prelim. Resp. 33–49. Accordingly, for the reasons discussed above, on this record, we find Petitioner has demonstrated a reasonable likelihood of showing the unpatentability of claims 5 and 7 over the combination of Phan-Anh and S2-060216.

F. Alleged Obviousness of Claims 1, 4, 5, 7, and 10 over Phan-Anh, S2-060216, and TS23.228

Petitioner argues claims 1, 4, 5, 7, and 10 of the ’617 patent would have been obvious over Phan-Anh, S2-060216, and TS23.228. *See* Pet. 60–62. Upon consideration of Petitioner’s evidence and Patent Owner’s arguments regarding the insufficiency of that evidence, and for the reasons discussed below, we are persuaded that Petitioner has demonstrated a reasonable likelihood of showing claims 1, 4, 5, 7, and 10 would have been obvious over Phan-Anh, S2-060216, and TS23.228.

1. Overview of TS23.228

TS23.228 is a 3GPP technical specification that “defines the stage-2 service description for the IP Multimedia Core Network Subsystem (IMS), which includes the elements necessary to support IP Multimedia (IM) services.” Ex. 1007, 10. In section 4.3.4., entitled “Identification of network nodes,” the specification discloses “[t]he CSCF, BGCF and MGCF nodes shall be identifiable using a valid SIP URI . . . on those interfaces supporting the SIP protocol. . . . These SIP URIs would be used when

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identifying these nodes in header fields of SIP messages.” *Id.* at 28. The specification further discloses that user registration with the IMS “relates to a particular contact address and a particular Private User Identity.” *Id.* at 41.

2. *Comparison of Claims 1, 4, 5, 7, and 10 to the Combined Teachings of Phan-Anh, S2-060216, and TS23.228*

Petitioner argues claim 1, 4, 5, 7 and 10 of the ’617 patent are obvious over the combination of Phan-Anh and S2-060216 for the reasons discussed in § II.E.4, *supra*, and further in view of TS23.228. *See* Pet. 60–62.

Petitioner argues that TS23.228 teaches identifying CSCF nodes in an IMS network, including P-CSCF nodes, using SIP URI’s in the header fields of SIP messages, and that registration in IMS networks relate to particular contact addresses. *Id.* at 61 (citing Ex. 1007, 28, 41). Petitioner, relying on the testimony of Mr. Bishop, further argues that a person of ordinary skill in the art would have looked to the teachings of TS23.228 to determine how to update Phan-Anh’s data restoration process to comply with the IMS standard implemented at the time of the invention, and in particular, based on the teaching in TS23.228 that the S-CSCF must know both the P-CSCF and UE addresses to provide service to the user. *Id.* at 61–62 (citing Ex. 1002 ¶¶ 147–148).

Patent Owner argues Petitioner has failed to show the unpatentability of claims 1, 4, 5, 7, and 10 over Phan-Anh, S2-060216, and TS23.228 because Petitioner does not identify any instance of TS23.228 disclosing or storing “restoration data” on the HSS, or disclosing that “restoration data” includes information identifying a P-CSCF address. Prelim. Resp. 51. Patent Owner further argues Petitioner has failed to show the unpatentability of these claims because Petitioner has ignored the explicit disclosure in

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TS23.228 that the HSS only stores the S-CSCF address. *Id.* at 52–53 (citing Ex. 1007, 45–47, Table 5.1).

Upon consideration of the evidence both for and against, we are persuaded that Petitioner has demonstrated a reasonable likelihood of showing it would have been obvious to a person of ordinary skill in the art to combine the teachings of Phan-Anh, S2-060216, and TS23.228, and that the combined teachings adequately account for each of the limitations required by claims 1, 4, 5, 7, and 10.

In particular, as discussed in § II.E.4, *supra*, we are persuaded, on this record, that Petitioner has demonstrated a reasonable likelihood of showing the combination of Phan-Anh and S2-060216, alone, teaches each of the limitations required by these claims. Petitioner argues Phan-Anh teaches an S-CSCF storing a user's TA or transport address on the HSS to protect it against loss in case of S-CSCF failure, and that a person of ordinary skill in the art would have found it obvious to modify Phan-Anh to have the S-CSCF also store the P-CSCF's SIP-based address because TR23.821—incorporated by reference into Phan-Anh—teaches the S-CSCF also needs to know the P-CSCF's address to provide service to a user. *See* Pet. 45–47, 49–50. Petitioner further argues a person of ordinary skill in the art would have found it obvious to further modify Phan-Anh to have a newly assigned S-CSCF run Phan-Anh's data restoration process when a previously assigned S-CSCF failed and did not restart because S2-060216 teaches re-assigning an S-CSCF when a failed S-CSCF does not restart, and Phan-Anh's data restoration process could be performed by a different S-CSCF “after failure of the original S-CSCF and assignment of a new S-CSCF.” *Id.* at 48–49. On this record, we find these arguments persuasive.

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We are unpersuaded, on this record, by Patent Owner's argument that Petitioner has failed to demonstrate a likelihood of showing the unpatentability of claims 1, 4, 5, 7, and 10 because TS23.228 does not disclose storing "restoration data" on the HSS, does not disclose that "restoration data" includes information identifying a P-CSCF, and explicitly discloses storing only the S-CSCF address on the HSS. Petitioner does not rely on the disclosures of TS23.228 alone for teaching these limitations, but on the combined teachings of Phan-Anh, S2-060216, and TS23.228. "Non-obviousness cannot be established by attacking references individually where the [challenge] is based upon the teachings of a combination of references." *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). "Rather, the test [for obviousness] is what the *combined teachings* of the references *would have suggested* to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (emphases added).

Consequently, because we are persuaded on this record that Petitioner has demonstrated a reasonable likelihood of showing claims 1, 4, 5, 7, and 10 are unpatentable over the combination of Phan-Anh and S2-060216, alone, we are persuaded that Petitioner has demonstrated a reasonable likelihood of showing claims 1, 4, 5, 7, and 10 are unpatentable over the combination of Phan-Anh, S2-060216, and TS23.228. *See In re Bush*, 296 F.2d 491, 496 (CCPA 1961) (finding the Board can find a claim unpatentable based on fewer than all the references cited to challenge the unpatentability of the claim). Petitioner relies on TS23.228 merely to disclose what Phan-Anh already discloses via its incorporation of TR23.821 by reference, namely, that S-CSCF's need to know both the UE address and the P-CSCF address to provide service to a user, and the P-CSCF address is

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in the form of a SIP-based URL or URI.

G. Alleged Obviousness of Claims 1, 4, 5, 7, and 10 over Phan-Anh, TR23.821, S2-060216, and TS23.228

Petitioner argues claims 1, 4, 5, 7, and 10 of the '617 patent would have been obvious over Phan-Anh, TR23.821, S2-060216, and TS23.228. *See* Pet. 62–63. Upon consideration of Petitioner's evidence and Patent Owner's arguments regarding the insufficiency of that evidence, and for the reasons discussed below, we are not persuaded that Petitioner has demonstrated, on this record, a reasonable likelihood of showing claims 1, 4, 5, 7, and 10 would have been obvious over Phan-Anh, TR23.821, S2-060216, and TS23.228.

1. Comparison of Claims 1, 4, 5, 7, and 10 to the Combined Teachings of Phan-Anh, TR23.821, S2-060216, and TS23.228

Petitioner does not compare the limitations of claims 1, 4, 5, 7, and 10 to the teachings of Phan-Anh, TR23.821, S2-060216, and TS23.228. Instead, Petitioner argues it would have been obvious to combine the teachings of Phan-Anh and TR23.821 because Phan-Anh incorporates TR23.821 by reference in its entirety, Phan-Anh addresses a shortcoming of the all-IP network disclosed in TR23.821, and a person of ordinary skill in the art "would have looked to TR23.821 to understand the context and details for implementation of the solution described in Phan-Anh." Pet. 62–63. This is insufficient to demonstrate a reasonable likelihood of showing the unpatentability of claims 1, 4, 5, 7, and 10 over Phan-Anh, TR23.821, S2-060216, and TS23.228.

A request for *inter partes* review must set forth, for each claim challenged, (a) the statutory grounds on which the claim is challenged, (b) the prior art relied upon in support of the challenge, and (c) a statement

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explaining how the claim is unpatentable under the statutory ground by “specify[ing] where each element of the claim is found in the prior art . . . relied upon.” 37 C.F.R. § 42.104. The request “*shall not be instituted* for a ground of unpatentability *unless . . . the petition supporting the ground would demonstrate* that there is a reasonable likelihood that at least one of the claims challenged in the petition is unpatentable.” *Id.* § 42.108(c) (emphases added).

Although Petitioner has identified the statutory ground and prior art relied upon in its challenge of claims 1, 4, 5, 7, and 10 as obvious over Phan-Anh, TR23.821, S2-060216, and TS23.228, Petitioner has failed to provide sufficient analysis showing, either explicitly or via incorporation of previous arguments, where each of the limitations recited in claims 1, 4, 5, 7, and 10 can be found in the prior art. *See* Pet. 62–63. In particular, Petitioner’s analysis fails to incorporate by reference its analysis, discussed in § II.E.4, *supra*, that claims 1, 5, and 7 would have been obvious in view of the teachings of Phan-Anh and S2-060216, alone. *Id.* Consequently, Petitioner has failed to demonstrate, on this record, a reasonable likelihood of showing claims 1, 4, 5, 7, and 10 would have been obvious over the combination of Phan-Anh, TR23.821, S2-060216, and TS23.228. *See* 37 C.F.R. § 42.108(c).

III.CONCLUSION

Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of claims 1, 5, and 7 of the ’617 patent over Phan-Anh and S2-060216.

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Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of claims 1, 4, 5, 7, and 10 of the '617 patent over the combination of Phan-Anh, S2-060216, and TS23.228.

Petitioner has failed to demonstrate a reasonable likelihood that it would prevail in showing the unpatentability of claims 1, 4, 5, 7, and 10 of the '617 patent over the combination of Phan-Anh, TR23.821, S2-060216, and TS23.228.

The Board has not yet made a final determination with respect to the patentability of any claim.

IV. ORDER

It is:

ORDERED that, pursuant to 35 U.S.C. § 314, an *inter partes* review is hereby instituted on the following ground:

Claims 1, 5, and 7 under 35 U.S.C. § 103(a) as obvious over Phan-Anh and S2-060216;

Claims 1, 4, 5, 7, and 10 under 35 U.S.C. § 103(a) as obvious over Phan-Anh, S2-060216, and TS23.228;

FURTHER ORDERED that, except as specifically enumerated above, no other ground of unpatentability, with respect to any claim, is instituted for trial; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial commencing on the entry date of this Decision.

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